City of Gardner, Kansas Electric Utility
Electric Service Standards

Information for use by Customers, Architects, Engineers, Contractors, Electricians, Employees, and those engaged in planning and construction of electric service and meter installations.

Issued: July 2007

General Offices,

For information on new or pending electric service connections, service alterations, electric energy pricing or electric service standards contact:

Gardner Energy Center
City of Gardner Electric Division
1150 E. Santa Fe
Gardner, Kansas 66030

Mailing C/O City Hall, 120 E. Main St.
ATTN: Ken Arnold (Division Manager)

Gardner Energy Center administration offices……(913)-856-7256

To Report emergencies after 5pm, weekends, and holidays……... (913)-856-6802

For utility billing questions …… (913)-856-7535
Amy Foster, Utility Billing Supervisor, Utility Billing Division

For Permitting…….(913)-856-0913
Jim Sherman, Codes Administrator, Community Development Department

UTILITY ONE CALL SYSTEMS:
Pursuant to Kansas Statute 66-1801 all excavators must call in their own locates.

Kansas
Call from within state…… 1-(800)-DIG-SAFE
Call from outside state…… 1-(800)-445-7802
City of Gardner Public Works…… (913)-856-0914

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FORWARD:

The City of Gardner Electric Division exists under the Public Works Department and is a municipal public power provider. The Electric Division, herein after referred to as the "City", is dedicated to helping its customers realize optimum value and utility from their electrical service. The City is dedicated to being responsive to both public input, and questions concerning power availability, and reliability.

To accomplish this, the City must effectively utilize its production and supply capabilities, while ensuring safe, reliable, and consistent service to all its customers. Experience has shown that uniform standards for installation, wiring, and system design are the best way to accomplish this goal. These Electrical Service Standards "2007 Edition" (herein after referred to as "Standards") and its requirements are not intended to be restrictive or burdensome, but have been developed to assist in expediting service connections and establishing appropriate customer classifications for service and billing, while maintaining both system quality and safety.

These standards have been reviewed and/or approved by the City Council, City of Gardner Electric Division, Public Works Engineering Division, and the City of Gardner Community Development Department

The Kansas Municipal Electric Association (KMEA), and Kansas Municipal Utilities (KMU).

In addition, technical assistance and support has been provided by Kansas City Power & Light.

It is, therefore, required that customers' wiring and installations intended for connection to the City of Gardner's system comply with these Standards and the National Electrical Code. This booklet is offered to assist customers, architects, engineers, contractors, electricians, and inspectors in planning electric service installations. It is not intended to ensure adequacy and safety of the customer's own wiring and equipment or for safety and reliability to serve when customer load substantially increases subsequent to service origination. Such responsibility remains with the customer. The City inspects the customer's wiring for compliance with requirements of electrical codes or regulations established by public entities.

Due to constant progress in the development of materials and methods, some procedures, outlined herein, may occasionally be modified. Upon request, information will be supplied concerning changes and revisions. Persons making regular use of this booklet should maintain contact with the City.

The City should be contacted about each installation as early as possible to provide time for necessary job inspections, scheduling, and proper coordination.

Where new electrical installations, additions, or alterations are contemplated, inquiry should be made in advance of design or purchase of equipment relative to current, voltage, location of point of delivery, and any necessary extension of the electric distribution system.

The customer is responsible for locating his service entrance equipment and meter socket at the place designated by the City. See the appropriate Exhibit at the back of this booklet. Failure to do so may result in unnecessary costs to the customer for service relocations and possible delay in providing service.

The impression generally prevails that compliance with the National Electrical Code and state, county, or city ordinances or statutes guarantees to the customer a wiring installation complete and adequate for the full use of electric service now and in the future. Unfortunately, this is not always the case, inasmuch as the Code, ordinances, and statutes are designed to provide only the minimum requirements considered necessary for safety. The Code itself states, "This Code contains provisions considered necessary for safety. Compliance therewith and proper maintenance will result in an installation essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use."

Installation of wiring capacity should provide for the long range projected needs of the customer. Not only does complete adequate wiring place at the customer's disposal all the comforts of electric service, but it protects the building investment by minimizing obsolescence resulting from a wiring system inadequate for modern needs.

1150 E. Santa Fe, Gardner, Ks. 66030

ELECTRIC DIVISION

2007 - Division Mission Statement

Our City's community pride is greatly fostered by the diverse amenities of services provided by each unique component affiliated with the Gardner Public Works Department. The City of Gardner Electric Division is committed to providing quality distribution services, emergency response, customer satisfaction, and mutual appreciation within the private and public sectors of the city. It is this division's pledge to the community that safety, efficiency, and dedication to reliable electric service, will always be the objective in providing power within the City of Gardner.

SECTION I

GENERAL INFORMATION

100. This booklet is issued by Electric Division of the City of Gardner, Kansas, herein referred to as the City, as a guide for obtaining electric service and to set forth the services available, conditions for service, and the standards for materials and construction in the customer's entrance installation. It is not the purpose of the City in this booklet to specify or limit the design of the customer's wiring or equipment. The standards for materials and construction are necessary to safeguard all customers and to secure maximum use of the City's service and are the minimum under which the City will supply service. Nothing contained in the Standards shall require the City to install area feeder circuits underground or required existing facilities to be put underground.

101. The term "customer," when used herein, shall mean any person applying for, receiving, using, or agreeing to take a class of electric service supplied by the City under one rate schedule at a single point of delivery and for use within the premises.

A new subdivision customer is defined as a customer taking electric service who uses such electric service for single family, duplex, and multifamily dwellings which have been platted and recorded. It is the responsibility of the Developer to work thru the City of Gardner Community Development Department with the City Engineering Staff to ensure appropriate development of the area.

Other definitions:
KO - knockout
conc - concentric
res - residence
NEMA -National Electrical Manufacturers Association
CT - current transformer
P/L- property line
NEC - National Electrical Code
NESC - National Electrical Safety Code
AWG - American Wire Gauge
USE -underground service entrance
PVC - polyvinyl chloride
OD - outside diameter
galv - galvanized
ID - inside diameter
MCM, kCM, kcmil -thousand circular mils wire size
GFCI -ground fault circuit interrupter
IRC - International Residential Code

102. These standards are supplementary to and are not intended to conflict with the General Rules and Regulations on file with the Kansas Department of Health and Environment, the latest version of the National Electrical Code ANSI/NFPA 70, which has been adopted by the City of Gardner, the International Residential Code for One and Two Family Dwellings, the National Electrical Safety Code ANSI C2, and such state, county, and municipal laws, ordinances, and statutes as may be in force within the areas in which the City furnishes electric service. In the absence of appropriate regulation, industry standards, e.g., those of Underwriters' Laboratories, Inc., may be invoked.

103. These standards supersede all previous publications of Electric Service Standards issued by the City prior to this date and are subject to change without notice.

104. The City Electric Division has representatives whose services are available to customers normally without charge. They endeavor to keep abreast of developments in safe and adequate practices in wiring, the latest developments in lighting and power application, and other data, which pertain to the most efficient use of electricity.

The City will consider requests for further information or to investigate difficulties arising from utilization. Customers should call upon the City any time they believe their knowledge and experience may be of assistance.

105. The customer shall give duly authorized agents and employees of the City, when properly identified, full and free access to the premises of the customer at all reasonable hours. This access shall be for the purpose of installing, reading, inspecting, adjusting, repairing, maintaining, replacing, or removing any of the City facilities on the premises of the customer or for any other purpose incidental to the electric service supplied by the City. Cost to repair damage to customer property/facilities, as a result of necessary access by the City to its facilities, is the responsibility of the customer.

106. Each City employee whose duty requires access to premises of the customer is furnished with an identification card. The customer should deny admittance to anyone claiming to be an employee who refuses to display a properly approved identification card. Any uncertainty of identity or purpose or any unreasonable number of calls should be reported to the City immediately.

107. The breaking of seals, tampering with meters, wires, or any other property of the City is prohibited and may be punishable by law.

108. The customer at all times shall protect the property of the City on the premises of the customer and shall permit no persons other than the employees and agents of the City and other persons authorized by law to inspect, work on, open, or otherwise handle the wires, meters, or other facilities of the City. In case of loss or damage to the property of the City due to carelessness, neglect, or misuse by the customer, their family, agents, servants, or employees, the customer shall, at the request of the City, pay to the City the cost of any necessary repairs or replacements of such facilities or the value of such facilities.

109. The customer shall not use any other electric power or lighting source, including stand-by or portable generators, in conjunction with the City installed service without advising the City Electric Division of such use. To prevent operation of the customer's stand-by generating facilities in parallel with the City installed service, the customer will be required to install and maintain, at customer's expense, such devices as designated by the City as suitable for the safe and reliable operation of the City distribution system, while preventing such parallel operation. The City, at its sole discretion, may disconnect the service if the generator causes a safety hazard to City employees or other persons.

110. Devices or attachments shall not be connected to the City facilities in such a manner as to permit the use of un-metered energy except with prior written consent of the City.

111. Electric service supplied by the City is for the exclusive use of the customer on the premises to which such service is delivered. Without an approved exception to PURPA 1978, the City will not supply electric service to a customer for resale or redistribution by the customer.

112. The City does not design, plan, install, or maintain the customer's wiring or electric equipment.

113. Customers may contact City of Gardner Utility Billing Division to obtain information relative to new electric service connections or changes in existing service. In order to obtain service at the time desired, application should be made well in advance and the customer should keep the City informed as to the progress of their installation and when he anticipates he will be ready for service. By submitting an application customer understands and agrees with the information submitted with or in connection with the application, in whatever form or format, may be used by the City and its employees, agents, and contractors for whatever purposes are, in the City's sole reasonable judgment, necessary or desirable in the provision and maintenance of electric service.

114. All Gardner customers should call (913) 856-7535 in regard to any inquiries concerning electric service or to report trouble.

115. Attachments of any kind or nature shall not be permitted on City poles without previous execution of the License for Pole Attachments for the City of Gardner. A copy of this License can be obtained from the Electric Division office as shown on page 1 of this booklet. Care must be taken by the customer in making installations of antennas near City lines so that under all conditions the installation will not be under or fall across City lines nor contact them in any way and thereby create a hazard to life and property.

116. The customer will provide for the City such rights-of-way and easements as are satisfactory to the City across property owned or otherwise controlled by the customer, for the construction, operation, and maintenance by the City of facilities necessary or incidental to the supply of electric service. Certain installations will require the customer

to sign an indemnification agreement. If City is required to secure easements or rights-of-way, the customer will be charged.

117. The customer shall permit the City to trim or remove any trees that may interfere with the safe operation of the City facilities. A routine trimming program for primary conductors is vital to maintaining reliable service, and is performed annually by the Electric Division. Trimming for secondary service entrance conductors remains the responsibility of the customer. To avoid future problems and inconvenience, it is strongly recommended that customers avoid planting tall-growing species under or near overhead lines. The customer is responsible for tree trimming per city standards on their property for a line extension and service to that customer.

118. The City will use reasonable diligence to supply continuous electric service to the customer but does not guarantee the supply of electric service against irregularities or interruptions. The City shall not be considered in default of its service agreement with the customer and shall not otherwise be liable for any damages occasioned by any irregularity or interruption of electric service.

119. The City shall not be considered in default of its service agreement and shall not otherwise be liable on account of any failure by the City to perform any obligation if prevented from fulfilling such obligation by reason of delivery delays, breakdowns of or damage to facilities, acts of God, or public enemy, strikes or other labor disturbances involving the City or the customer, actions of civil, military, or governmental authority, or any other cause beyond the control of the City.

120. The developer or property owner will reimburse the City for the cost of relocating, replacing, repairing, re-leveling, and/or raising transformers, secondary pedestals or other City equipment that are damaged, destroyed, or buried during the construction process. For a period of 12 months following City energizing facilities, the developer or property owner will be held responsible for the structural integrity of all facilities installed by the developer or the developer's contractor.

121. Developer/owner shall be responsible for planning, planting, and maintaining any landscaping required by any local ordinances around City facilities.

122. All requests for service should be made in person at the City of Gardner, Utility Billing office, located at City Hall, 120 E. Main St., Gardner, KS 66030. All requests for permits or inspections should be made in person at the City of Gardner, Community Development Department office at the same address. All requests for applying for new developments within the City of Gardner, should be made in person at the City of Gardner, Public Works Department, Engineering Division at the same address.

123. The Customer is responsible for all of the cost that the City incurs for providing the electrical facilities required to serve the Customer. The City may, at its option, offset a portion of these costs. All changes made by the customer in the service specifications, which results in additional material, labor, and/or equipment, will require payment by the

customer of those additional charges (see Exhibit N). All applicable service fees and charges related to any service must be paid in advance before the service will be energized.

124. The developer is responsible for installing the street lighting system within a platted subdivision or commercial development. The typical street light installation is shown in Exhibit L. Use of other types of street lighting equipment requires the approval from the City of Gardner.

SECTION II

GENERAL SERVICE ENTRANCE
POLICIES AND REQUIREMENTS

A. INSPECTION AND CERTIFICATION OF CUSTOMER'S WIRING
200. New wiring and alterations in wiring are required by law to be approved. The City cannot render service until a City of Gardner Community Development staff member has inspected and approved the equipment. It is the intention of the City that the requirements of applicable codes will be adhered to in all installations whether work is performed by the City of Gardner Electric Division Crew(s) or approved Contractor(s).

B. GENERAL PROVISIONS
201. The City will typically make only one service connection for each type of electric service to a customer's premises except where required by the customer's load being of such size and character and so located as to make it advisable, in the opinion of the City, to install more than one service connection. The standard type of service for the City is that served from overhead lines. Not all service types and voltages are available at all locations within the City service territory. It is, therefore, important that the customer contact the City before proceeding with the purchase of equipment and installation of wiring. The primary taps to new developments must be underground.

202. In serving any customer, the City will, at its sole option and subject to its General Ordinances on file:

(a) Determine the point and character of electric service from which it will supply a customer;

(b) Approve the location of the customer's entrance and the design of the electric system to this location from the City supply point; and

(c) Develop a detailed plan to modify the City facilities to suit the customer's desires, if practicable. The customer will be required to make a capital contribution for the cost to provide the service.

(d) If revisions in plans (see (c) above) are required after they have been presented to the customer, any costs incurred by the City required to revise those plans will be charged to the customer (see Exhibit N).

203. Commercial or Industrial customers are to balance the load on their systems. This is advantageous to the customer as well as to the City because it will give the customer better voltage regulation and maximum use of service entrance equipment.

204. The address of premises where new service is required shall be plainly displayed. Contractors and others installing electrical work are to place the address on each installation. In a new development or other area where permanent street signs have not yet been installed, developer or contractor shall identify streets so as to facilitate location

of addresses. In a new area where permanent street signs have not yet been installed, developer and or contractor shall identify streets so as to facilitate location of addresses.

205. The customer shall furnish and install Underwriters' Laboratories, Inc., listed disconnecting devices in accordance with the provisions of the International Residential Code for One and Two Family Dwellings and local ordinances. Service entrance conductors shall be sized in accordance with the International Residential Code for One and Two Family Dwellings.

206. Where a fused or circuit-breaker type switch is used, the customer is to furnish fuses or circuit breakers of a type listed by Underwriters' Laboratories, Inc., and to install them in accordance with the National Electrical Code. The customer should maintain a stock of replacement fuses.

207. The Delivery point is the point where the City delivers electrical energy to the customer. This delivery point can be a meter socket, pad-mounted transformer, secondary pedestal, or an overhead weather head. In order to provide satisfactory service, the customer and the City must agree on the location of the delivery point and all metering-related equipment prior to construction. For all service installations, the City will furnish a meter location diagram after the application for service has been made. It will then be the customer's responsibility to verify the meter location with the City prior to installation of the service facilities.

208. A fuse or circuit breaker shall not be installed in the neutral or the ground conductor of the service entrance. Exposed conductive material enclosing electric wiring and equipment is to be grounded by the customer on their premises in accordance with the provisions of the National Electrical Code.

C. METERING

209. The meter installation and entrance shall be located on the outside of the customer's structure at a suitable place as approved by the City. The City will size the service and meter installation to the customer's load. Access for City personnel must be maintained to assure proper maintenance of the service. Clear space in front of the meter shall not be less than 36. Self- contained metering is intended for single-phase service up to 400A and 3-phase service up to 200A. For larger services, current transformers that are remote from the meter are required. The use of a device that combines the meter socket with the Customer's distribution panel will not be accepted for any class of service, except for temporary service.

210. The customer must furnish a City approved meter socket (See Exhibit A) for all self contained installations (see Paragraph 209). Service shall be denied if an unapproved meter socket is installed. The use of combination meter Socket Panels will not be acceptable for any class service. The customer shall furnish and install all multiplex meter base assemblies with a main disconnect for all multiple meter installations. The following govern the location of meters:

(a) Meters shall be located outside and where not subject to vibration, jarring, gasses, dust, fluids, etc., that may affect the accuracy of the meter.

(b) Meters for single-family houses shall be located on the side nearest to City facilities, not on the back. Access to the meter must not be restricted by any fence. (See Exhibit I)

(c) Meters shall be located on the exterior face of the structure.

(d) For ease of maintenance and operation of meters, the center of the meter where no walk or driveway exists shall be not less than 60" nor more than 72".(See Exhibits D, E, or F)

(e) One 2x6 shall be nailed between studs at the meter location to provide a strong structural support into which meter socket mounting screws shall be driven at the top and bottom of the meter socket (see Exhibits D, E, or F).

(f) Call the City of Gardner Community Development Department at (913) 856-0913 to verify correct meter location. Service shall be denied if meter is installed at an unapproved location.

211. Under no circumstances shall any meters be removed or relocated, whether temporarily or permanently, except by representatives of the City authorized to do such work. The City will cooperate in relocating its metering equipment and service attachment when required for modification of the customer's building or service entrance at the customers expense and meeting the approval of a City of Gardner Community Development staff member.

212. For all installations greater than 200 amps (except for 400 amp, 120/240 volt), the City will own and maintain the meter can, billing meter, metering current transformers and metering control cable. In most cases this will be installed at the City owned facility. If it is installed on the customer property, it is to be installed as shown in Exhibit J. The customer will be responsible to furnish and install all other equipment.

213. In general, only one meter will be installed per electrical service except for buildings where there is more than one occupant. Article 230 of the National Electric Code identifies requirements regarding the number of services that can be supplied to a building or structure, identification requirements, and the Code regarding the number of service entrance conductor sets. Exceptions, as identified in Article 230 of the National Electrical Code regarding the number of services to a building, allow for more than one service when each service will be used for a different purpose such as for different rate schedules.

D. OVERHEAD SERVICE

214. Normally, the customer will be served through a meter attached to the outside of the building. Service entrance conductors shall be installed in accordance with the latest edition of the National Electrical Code.

215. The length of the service drop from the last City pole to the customer's premises must be limited by the ground clearance attainable at tensions appropriate to the strength of the cable and its two supports. The customer is to provide, in the construction of their building, a suitable service attachment of sufficient strength to withstand the stress of the service drop under National Electrical Safety Code heavy loading conditions (see Exhibit B or C).

216. The point of attachment of the City service drop to the customer's building or mast must be of proper height and location to provide at all points in the span the minimum clearances above ground and from other wires and obstructions required by the National Electrical Safety Code and other applicable rules. In general, the clearances given here are to be maintained with the wires at their maximum operating temperature and also when covered with 1/2 inch of ice. The National Electrical Code states in Article 230-9 that service conductors up to 600 volts attached to buildings "shall have a clearance of not less than three feet from operable windows, doors, porches, fire escapes, or similar locations," and that "Conductors run above the top level of a window shall be considered out of reach from that window."

Minimum Ground Clearances Applicable to Standard City Service Drops up to 480 Volts:

Nature of ground under the cable required vertical clearance

Track rails of railroads 24 feet

Streets, alleys, roads, parking areas subject to vehicles higher than 8 ft., and farm and other land traversed by vehicles up to 14 ft. high, 18 feet

Residential driveways and commercial areas not subject to vehicles higher than 8 ft., and spaces or ways accessible only to pedestrians: 120/240 volts, single phase, 12 feet

120/208 volts, three phase, 12 feet

277/480 volts, three phase, 12 feet

Swimming Pool - See NEC

217. Single phase electric meter installation up to 200 amps. All electrical service connections shall be installed by the City from the source to the meter can on the outside of the building or residence. The customer shall furnish and install a City approved meter socket, and conductors from their service entrance device and equipment to the meter socket; a conduit mast and weather head; conduit, service dead-end; and service entrance conductors to attach to the service drop. The customer's service conductors shall run from the meter socket through the service mast with at least 24" of conductor extending from the weather head to provide for connection to the service drop with an adequate drip loop. The City will furnish and install the service drop (125 feet maximum length). The customer will be charged for the excess costs which the City incurs to provide services

longer than 125 feet. The City will make the connections to the customer's service conductors and install the meter. See Exhibit N for the charge for this service.

218. Single phase greater than 200 amps and three phase 400 amp electric installations. The customer will provide and install the service entrance equipment, the service conduit riser mast, weather head, service dead-end on the building, and service lateral conductors of a length sufficient to reach the source pole, to the City specifications. The service dead-end shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearance to ground or to the roofline as called for in the National Electric Code (see Paragraph 220). The City shall connect the service lateral conductors at the pole and install the metering current transformers, control cable, meter can, and billing meter. For single phase service, the City shall calculate, in a fair and equitable manner, the installation costs for this service using, as a basis, the same costs included in determining other user connection fees (See Exhibit N). See Exhibit N for the charge for three phase service. Multiplex meter base assemblies (duplex, triplex, or four-plex) shall be supplied by the customer and must be approved for use by the City. Multiplex meter base assemblies must be supplied with a main disconnect. The Customer shall provide the service lateral conductors from the metering assembly to the pole. The City shall make the connection of the service lateral conductors at the pole and at the weatherhead. The City shall calculate, in a fair and equitable manner, the service installation costs for multi-family dwellings and multi-occupancy commercial buildings using, as a basis, the same costs included in determining other user connection fees (see Exhibit N).

219. The City owned overhead service connectors can accommodate up to three customer conductors per phase and 800A total rating. If customer's conductors might exceed these restrictions, an Energy Center representative must be contacted for approval.

E. UNDERGROUND SERVICE

220. Service lateral conductors installed on a customer's property for the purpose of serving that customer, installed at the City's expense, remain the responsibility of the City. Electric facilities installed at customer expense (except for metering equipment) remain the responsibility of the customer. Wherever underground service cables are installed by the customer, they will be terminated by the City at the first point of connection with the City system and this point will be the dividing line of responsibility between the customer and the City.

221. Residential Single phase electric meter installation up to 200 amps. The customer shall provide and install the meter can and service conduit from the meter can to the transformer, secondary pedestal, or pole to the City specifications (see Exhibit D or E). The Customer shall install the meter can on the outside of the residence. The City shall provide the service lateral conductor (125 feet maximum) and the meter and make all necessary connections from the transformer, secondary pedestal, or pole to the meter base. The customer will be charged for the excess costs which the City incurs to provide services longer than 125 feet. See Exhibit N for the charge for this service.

222. Commercial electric meter installations up to 200 amps. The Customer shall install the meter can on the outside of the building. The customer shall provide and install the meter can and service conduit and service lateral conductors from the meter to the transformer, secondary pedestal, or pole, to the City specifications (see Exhibit F). The City shall provide the meter and make all necessary connections at the transformer, secondary pedestal, or pole. See Exhibit N for the charge for this service. Multiplex meter base assemblies (duplex, triplex, or four-plex,) shall be supplied by the customer and must be approved for use by the City. Multiplex meter base assemblies must be supplied with a main disconnect. The Customer shall install the service conduit and the service lateral conductors from the metering assembly to the transformer, service pedestal, or pole. The City shall make the connection of the service lateral conductors at this facility. The City shall calculate, in a fair and equitable manner, the service installation costs for multi-family dwellings and multi-occupancy commercial buildings using, as a basis, the same costs included in determining other user connection fees (see Exhibit N).

223. Commercial Three phase electric meter installation up to 1000 amps. The customer shall provide and install the transformer pad, the service conduit, and service lateral conductors from the building to the transformer or agreed upon delivery point, to the City specifications. For a single customer, the City shall provide the current transformers, metering control cable, and meter and make all necessary connections at the transformer or agreed upon delivery point. For multi-occupancy commercial buildings, the metering will be located on the building adjacent to the service main disconnect (the type of metering will vary, depending on occupant use). See Exhibit N for the charge for this service.

224. Three phase electric installation-1000 KVA or over. All electrical service, which requires a transformer rated at 1000 KVA or greater, will be considered on an individual basis. The customer shall provide and install the transformer pad, metering enclosure pad, service conduit, and service lateral conductors from the building to the transformer, to the City specifications. The City shall install the transformer and make the connections of the service lateral conductors at the transformer. The City shall install a primary metering enclosure next to the transformer and provide and install all metering facilities and make all necessary metering connections. The installation cost to the customer shall be determined by the City and shall include the total cost of all enclosures or switchgear, all primary cable, the transformer and its related hardware, and the metering enclosure and meter supplies (see Exhibit N).

225. Underground Distribution. Development of a residential, commercial, or industrial area may necessitate the installation of an underground distribution system for the entire area. The developer of such an area should contact the City as early as possible when planning such an area. Necessary information required from the developer will include, but not be limited to:

1. Exact location of premises to be served; i.e., site plan, street addresses, lots, block numbers, and legal descriptions of the property. The site plan must locate proposed structures and foreign underground obstacles to property lines. Site plans should show proposed water, gas, and sewer utilities.

2. Commercial and industrial customers must provide specific electric load information (e.g., size of air conditioning, heating, water heating, cooking, and other major loads, number of phases and voltage, street lighting, traffic lights, etc.).

3. Commercial and industrial customers must provide additional information such as mechanical plans, electrical plans, elevations, etc.

4. Any special or unusual requirements. The Electric Division will review plans submitted and will identify locations for distribution apparatus (transformers, sectionalizers, service pedestals) with respect to other utilities facilities and determine conduit requirements (for a fee payable to the Electric Division) when the final plat is submitted to the Electric Division for approval (see Exhibit N).

In residential developments with underground distribution, the developer will prepay the City the per lot charge of the installation related to the underground distribution system. See Exhibit N for the charge for this service. In commercial installations and industrial parks with underground distribution, the developer will pay the City the entire cost for the installation of the distribution system. The cost for feeder extensions to feed commercial or residential developments will be negotiated with the City.

226. Fences installed on the customer's premises must be located at least five feet on the sides from distribution transformers, sectionalizers and service pedestals. A 10 foot operational space is required on the front (door side) of all equipment. Additional clearances may be required at the option of the City.

F. TEMPORARY SERVICE

THE CUSTOMER SHALL ALLOW THE CITY SUFFICIENT LEAD-TIME WHEN TEMPORARY FACILITIES ARE NEEDED

227. At locations where overhead secondaries exist (on a pole), the customer is to install a meter support within 15 feet of the City pole and of adequate height to satisfy NESC code clearances (See Paragraph 220). At the meter support pole, the customer shall furnish and install a City approved meter socket, conduit, and conductors from their service entrance and equipment to the meter socket; a conduit mast and weather head; service dead-end support; down guy (if needed); and service entrance conductors to attach to the service drop. The customer's service conductors shall run from the meter socket through the service mast with at least 24" of conductor extending from the weather head to provide for connection to the service drop with an adequate drip loop (see Exhibit G). The City will furnish and install the service drop. The City will make the connections to the customer's service conductors and install the meter. The customer shall identify in the field each temporary service by name, address, and lot number. The charge for this temporary service is shown in Exhibit N. One temporary service is required for each permanent address that the City will serve. The temporary service will be disconnected when the permanent service is connected.

228. At locations where underground secondaries exist (at a transformer or pedestal), the customer will furnish and install a City approved meter socket and a 100 amp (maximum) service entrance, within 8 feet of the existing facility and provide 10 feet of 3-#4 CU Type SEOOW Cable coiled (see Exhibit H). The City will install the service cable from the meter support to the electric source and make the connection. The customer shall identify in the field each temporary service by name, address, and lot number. The charge for this temporary service is shown in Exhibit N. One temporary service is required for each permanent address that the City will serve. The temporary service will be disconnected when the permanent service is connected.

229. Where a secondary voltage source does not exist, or the above does not satisfy the customer's needs, other types of temporary service can be furnished. The customer is to pay to the City the cost of the installation and removal of its necessary temporary lines, transformers, services, and switching and metering equipment (see Exhibit N).

SECTION III

UTILIZATION EQUIPMENT

A. GENERAL

300. In order to assure uniformly satisfactory service to all customers, it is important that the customer follow the requirements contained herein for the customer's loads. These requirements are not meant to be unduly restrictive and can be met by commercially available equipment. The customer shall use the electric service supplied by the City with due regard to the effect of such service on other customers and on the facilities and equipment of the City. The City may refuse to supply electric service or may suspend electric service to a customer without notice if the customer's installation is in an unsafe or dangerous condition, or is so designed or operated as to disturb the electric service supplied by the City to other customers. Equipment with excessive starting currents, or that has intermittent or rapidly fluctuating load characteristics, shall not be connected to the City distribution lines without prior arrangement with the City (See Section C). If the customer's use of such equipment requires the installation of separate or additional transformer capacity, the City shall, upon request from the customer, furnish and maintain such separate or additional transformer capacity at an additional cost to the customer. In order for the City distribution lines and equipment to be checked for adequacy, the customer must notify the City whenever single-phase motors larger than seven and one half horsepower, heating or cooking appliances greater than ten kilowatts, or any special or unusual equipment is to be installed.

301. Electric service is subject to occasional rapid voltage variations, which may adversely affect the operations of sensitive controls on a customer's electrical equipment. Devices are available for use with most electric equipment that will minimize the effect of such disturbances. Upon request, the City will suggest appropriate devices for specific application and will advise on their correct adjustment and setting. The City will not assume liability for damage to the customer's equipment nor to disturbances in any customer processes arising from such variations. Many computer installations require special consideration. The City will assist the customer with the planning of such special service requirements.

302. Lightning arresters, which are installed by the customer, must be of the ground lead disconnecting type.

B. MOTORS-STARTING LIMITATIONS

Single-Phase, 120/240 Volts

303. Starting inrush for single or multiple motors shall be limited at any instant to 50 amperes at 120 volts or 150 amperes at 240 volts. This applies to air conditioning units. The running power factor of motors shall not be less than 85 percent.

Three-Phase

304. For three-phase motors, the permissible starting inrush is limited by the effect on lighting, other motors, and on the distribution systems of the customer and the City. The customer must notify the City of the maximum size and type of motor to be served, as well as the aggregate of all motor loads, so the City may assure proper service to all customers on its affected distribution system. A limitation on the motor inrush current may be necessary and this can be accomplished with appropriate starting devices. Three-phase synchronous motors shall have a running power factor of not less than 85 percent.

Motor Protection

305. The City uses single-pole switches and single-phase fuses in its distribution system. Accordingly, the customer must protect all three-phase motors and equipment from a single-phase operating condition. In addition, suitable protection, in accordance with the National Electrical Code, must be provided by the customer for all motors in order to protect the motor and equipment from improper or dangerous operation due to motor overloads or the failure to start.

(a) All motors shall be protected against overload by the installation of adequate over-current, thermal protective devices in all phases.

(b) Three-phase motors that operate apparatus that may be subjected to damage due to a reversal of rotation shall be protected with reverse-phase relays.

306. The City shall not be responsible for any damage to the customer's equipment due to improper protective devices or the improper functioning of protective devices.

C. OTHER TYPES OF EQUIPMENT

Welding

307. The customer must notify the City prior to installation, of all the characteristics of each individual welder— what it is to be used for and the timing of its welding operations—so that the City can assure delivery of proper voltage at the welder and prevent objectionable voltage variations to other customers.

Special or Unusual Equipment

308. Power factor corrective equipment, flashing signs, high frequency equipment, uninterruptible power supplies, spark discharge devices, radio transmitters, X-ray machines, experimental devices, or any other equipment which could cause abnormal voltage fluctuations or harmonic distortion shall be designed and operated so as not to adversely disturb the City electrical distribution system. Customers must inform the City of the characteristics of any such equipment prior to placing it in service. If a customer uses its building wiring as a carrier system for communication or signaling purposes, the customer shall furnish and install suitable electrical filtering equipment to keep the City distribution facilities free from carrier frequency currents.

D. BACK-UP SUPPLIES AND GENERATION

309. Any customer contemplating the operation of generating equipment must contact the City for information regarding terms, conditions, and requirements for interconnection with City facilities. Generation shall not operate in parallel with the City electric power system. The customer must submit to the City detailed plans, specifications, equipment description, and other details pertinent to the proposed installation, as may be required by the City. The City must approve these plans, specifications, etc., before generation operation will be allowed.

310. Where the customer desires a back-up generator for supplying electricity to consumer's loads in the event of a City electrical outage, an automatic double throw transfer switch must be provided by the customer which disconnects the customers service equipment from the City electrical distribution system before connecting it to the stand-by generator. This is necessary to prevent a dangerous backfeed of energy into the City's lines and equipment, which might create a hazard to equipment and personnel and could seriously damage the customer's wiring and generator. The City must review and approve the specific automatic transfer switch application.

SECTION IV

RESIDENTIAL
(SINGLE FAMILY, MULTI-FAMILY,
& SINGLE MOBILE HOME)

A. ELECTRIC SERVICE AVAILABLE

400. General: The City provides overhead or underground single-phase, 60 hertz, 120/240 volts, three-wire to residential customers.

401. The term "Residential Service," when used herein, shall mean any single family building, or multi-family building where the individual units are individually metered, either of which is used exclusively for long-term (greater than one month), permanent domestic living. Each building or portions thereof, of multi-family buildings established for single family dwelling shall be complete with independent and separate areas for living, sleeping, cooking, dining, and sanitation. Residential Service is neither available to master metered multi-family, multi-occupancy buildings though they may be intended for domestic living, nor generally available for residences wherein business ventures are conducted for profit.

402. Single Mobile Home Service: A single mobile home customer is defined as a customer taking electric service to a single permanent pre-manufactured dwelling located in a district which has not been platted and recorded.

SECTION V

RESIDENTIAL SERVICE ENTRANCE
POLICIES AND REQUIREMENTS

A. GENERAL PROVISIONS

501. Architects, engineers, contractors, builders, etc., are required to consult in advance with the City of Gardner Community Development to obtain any special specifications and directions for the proposed service entrance. This may avoid delay and expense if carefully observed and followed.

502. To avoid expensive alterations later, the service entrance should be adequate for future growth as well as for present requirements. It is recommended that all new service entrances have a minimum capacity of 200 amperes. It is the customer's responsibility to install service equipment in accordance with the provisions of the National Electrical Code as a minimum. Service equipment shall be suitable for the short circuit current available at its supply terminals. So that architects, engineers, and wiring contractors may select proper service equipment to meet the above requirement, the following information will apply to new installations. Available short-circuit current at residential service entrances rated 200 amperes or less will be more than 5,000 amperes but will not exceed 10,000 amperes.

503. Residential buildings requiring three phase service for loads such as elevators or large central cooling units will be served as a commercial customer (@ 120/208 volt) and in accordance with Service Standards for that type of customer (See Section VII).

B. OVERHEAD SERVICE

504. For self-contained metering, the customer shall furnish and install a City approved meter socket, conduit, and conductors from their service entrance and equipment to the meter socket; a conduit mast and weather head; service dead-end, and service entrance conductors to attach to the service drop. The service conduit mast or service hook shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearances for the City service drop. The customer's service conductors shall run from the meter socket through the service mast with at least 24" of conductor extending from the weather head to provide for connection to the service drop with an adequate drip loop. The City will furnish and install the service drop (125 feet maximum). The City will make the connections to the customer's service conductors and install the meter.

505. The customer is to provide, in the construction of their building, a suitable service attachment of sufficient strength to withstand the stress of the City service drop under National Electrical Safety Code heavy loading conditions.

506. The City owned overhead service connectors can accommodate up to three customer conductors per phase and 800A total rating. If customer's conductors might exceed these restrictions, an Energy Center representative must be contacted for approval.

507. Single phase electric meter installation up to 400 amps. All electrical service connections shall be installed by the City from the source to the meter can on the outside of the residence. The customer shall provide and install the meter can, service riser, weatherhead, and service dead-end to the City specifications (see Exhibit B). The City shall provide the service lateral conductors (125 feet maximum) and the meter and make all necessary connections from the pole to the meter base. See Exhibit N for the charge for this service.

C. UNDERGROUND SERVICE

508. Residential Service (Single Family or Duplex Dwellings): Single phase electric meter installation up to 400 amps: Customer shall provide conduit from the electric source to the meter location. The City will perform an acceptance inspection as appropriate to ensure the raceway system has been constructed in accordance with the City drawings and specifications. The City will continue to provide and install all primary and secondary conductors.

Home Owner or Builder - The home owner or builder is responsible for extending the conduit system from the point where the City has ended or stubbed the service conduit from the point outside of the utility's easement to the metering socket's enclosure (see Exhibit D). The minimum depth to the top of the conduit shall be 30". The homeowner or builder must backfill the trench to cover the service conduit before the City will install the service cable. Backfilling shall be pneumatically tamped and compacted to 90%. The home owner or builder is required to provide and install a conduit riser on the building for the service entrance, a City approved meter socket, and any other conduits necessary to complete the entrance, in accordance with the City Standards. All conduit installed by the customer shall have heavy-duty string or nylon cord inside for the City to install its cable pulling rope.

The meter socket must be installed at the location designated by the City, which is generally on the side of the house (See Paragraph 213 (b), on page 13) (See Exhibit I).

The City shall provide, install, and maintain the service cables (125 feet maximum). The customer shall provide and install City approved meter sockets as required. (See Exhibit A) In multi-family dwellings, no more than one point of service will be provided between firewalls.

See Exhibit N for the charge for this service.

509. Multi-Family Dwellings (not to exceed 3 floors): The customer is to obtain for the City, at no cost to the City, all right-of-ways and easements, required on his premises for the City installed primary, secondary, and service cables; pad-mounted transformers; and any other facilities that may be required to serve the customer. The areas to be served

must be platted and the plats filed and graded to within six inches of final grade before the City begins construction. Ingress for City vehicles must be maintained to all structures involved prior to installing sod, landscaping, and fencing. The developer shall install property line stakes, curb chips, and easement markers prior to the construction of electric infrastructure by the City of Gardner Electric Division. This City shall install, own, and maintain primary, secondary, and service cables; transformers; enclosures; switchgears; and secondary pedestals required to serve the customer and make the termination of the service cable in the metering panel on the outside of the building. The customer shall provide and install, electrical plastic conduit (Schedule 40 PVC), for the City installed primary and secondary cables, sized as required, under all driveways, paved area, culverts, creeks, extensively landscaped areas, etc. The depth shall be 48" to the top of the conduit. Underground conduit installed by the customer shall be manufactured according to NEMA standard TC-2 for Electrical Plastic Conduit. A heavy-duty string or nylon cord shall be provided in the conduit. Any conduit installed by the customer for use by the City, shall have the ends sealed and located by a stake extending 2' above the ground identifying the conduit. The customer or developer is to provide and install all conduit risers for services to the meter or main disconnect location on the outside of the building(s) being served and City approved meter sockets in accordance with City Standards. Meter sockets shall all be at one location (the portion of a building between approved fire walls is considered one location).

In apartments, multiplexes, and other buildings where a number of meters are installed, each service switch and meter enclosure is to be plainly marked by the building owner, the customer, or his agent with a permanent identification of the apartment or space which it serves. General services and electric heat services must be similarly distinguished. The identification shall also be permanently inscribed on the inside back of each meter enclosure near the meter socket clips and inside the door of the entrance panel for each apartment. It is the responsibility of the building owner, the customer, or his agent to see that wiring in such locations is connected to the proper meter or meters. The City will not render service until all switches, meters, and entrance panels are properly marked. The City reserves the right to collect from the developer all expenses incurred due to improper labeling of this equipment (See Exhibit N).

The City shall calculate in a fair and equitable manner the installation costs for multi-family dwellings using, as a basis, the same costs included in determining other user connection fees. (See Exhibit N)

510. Provisions for Converting to Underground Electric Service (Single and Multi-Family Dwellings) in an Existing Overhead Service Area: The City has adopted a policy of underground service to its customers. Underground Service will be made available provided that the City deems such service to be feasible and charges for the cost of converting from overhead to underground electrical service, as determined by the City, shall be paid to the City prior to the start of underground construction. (See Exhibit N) The requirements of Paragraph 507 apply to this conversion.

D. NEW SUBDIVISION RESIDENTIAL SERVICE

511. The Developer will be required to pay the City of Gardner Community Development Department, at the time of plat filing, an aggregated cost for URD (underground residential development) construction, engineering and service connections (see Exhibit N).

For Multi-family installations, the Developer shall use an electric contractor for the conduit infrastructure installation. In addition, the developer will pay the actual charges for service connections, engineering, and inspection fees by the City. Electric Division staff will evaluate and help the developer determine the most efficient method for scheduling construction.

512. It is preferred that a "rear of lot" electric distribution system be the specified design, determined by the size of development and costs associated with materials and developer requests for special handling. Upon written application, by an owner, builder, or developer, as an alternative to "rear of lot" distribution, and in areas where terrain will lend itself to such construction, the City will consider "front of lot" underground distribution within a development with 12 or more contiguous individual lots. An additional charge will apply (see Exhibit N).

The developer will provide a preliminary plat to the City showing the proposed electrical source for the development and distribution conduit layout. The City will red line and make any appropriate changes to the preliminary plat layout and electric feed source information. Two copies of a filed plat must be furnished to the City along with an electronic version in AutoCAD format.

New developments requiring new electric feeder construction to supply the development will be apportioned a feeder extension charge based on expected KVA load in addition to any lot charges that need to be paid, any development that comes in after the initial installation of the feeder will also be assessed a charge for their usage on the extension. The proposed electrical loading will be required prior to the construction planning stage from a certified Electrical Engineer. The City will review the plans and also have their Electrical Engineer approve all plans.

The City will require a fee for installation of underground electrical facilities in a development and will require the fee to be paid prior to any City construction. See Exhibit N for the charge for this service.

The developer must agree in writing to fulfilling certain requirements, which are listed herein. A Developer Sign-off Form (see Exhibit M) will be provided to the developer to be signed and returned to the City of Gardner. This form must be completed along with all payments to the City, prior to any construction of electric service facilities within the development. The area to be served must be platted and the plats filed and graded to within six inches of final grade before the City begins construction.

The developer shall provide and install, all primary, secondary and streetlight conduits that are necessary to contain electric service conductors for a single lot or an entire development. The City will perform an acceptance inspection as appropriate to ensure the raceway system has been constructed in accordance with the City's drawings and specifications. The City will provide and install all primary, secondary and streetlight conductors.

Conduits need to be (Schedule 40 PVC), sized as required, under all driveways, paved area, culverts, creeks, extensively landscaped areas, etc. The depth shall be 48" to the top for primary and secondary conduits, and 24" for streetlight conduits. Underground conduit installed by the customer shall be manufactured according to NEMA standard TC-2 for Electrical Plastic Conduit. A heavy-duty string or nylon cord shall be provided in the conduit. Any conduit installed by the customer for use by the City, shall have the ends sealed and located by a stake extending 2' above the ground identifying the conduit as (ELECT. CONDUIT).

This City will install, own and maintain primary, secondary, streetlight service cables (125 feet maximum); transformers; enclosures; switchgears; and secondary pedestals required to serve the customer and will make the termination of the service cables in the meter socket on the outside of the building.

The address of premises where new service is required shall be plainly displayed. Contractors and others installing electrical work are to place their names and addresses on each installation. In a new development or other area where permanent street signs have not yet been installed, the developer or contractor shall identify streets so as to facilitate location of addresses.

The developer is responsible for installing the conduits for the electric distribution facilities within the easements or rights-of-way designated for the use by the City and in accordance with standard City specifications. Generally, primary and secondary conduits will be located five feet from the center-line of sewer, or storm lines, or at the center-line of the specified utility easements.

513. The developer will reimburse the City for the cost of replacing, repairing, and/or raising transformers, secondary pedestals or other City equipment that are damaged, destroyed, or buried during the construction process. (see Exhibit N).

E. NEW SUBDIVISION MOBILE HOME SERVICE

514. New Permanent Mobile Home Development:
A new permanent mobile home development is comparable to a single-family residential development as defined by local zoning. To qualify, the development must have such facilities as permanent paved roadways, underground sewer and water connections, and must be finish-graded.

515. Underground Service:

The requirements of Paragraph 512 apply to underground service for permanent mobile home developments except for provisions described by this Paragraph. The customer shall furnish and install a City approved mounting pedestal for the meter and main disconnect with protective device and install a ground and grounding electrode. The customer shall install, own, and maintain a continuous, rigid electrical plastic conduit (Schedule 40 PVC conduits and fittings) without sharp bends or indentations from the meter pedestal to a designated City service pedestal. The minimum depth to the top of the conduit shall be 30". Underground conduit installed by the customer shall be manufactured according to NEMA standard TC-2 for Electrical Plastic Conduit. A heavy-duty string or nylon cord shall be provided in the conduit. The customer shall install the necessary service entrance conductors and conduit from the main disconnect to the mobile home. It is recommended that 200 amperes capacity be provided for each unit due to the frequent use of electric heating in mobile homes (See Exhibit K). The City will install all primary and secondary distribution and will furnish and install the service lateral conductors to each meter position, make the meter socket connections, and install the meter. See Exhibit N for the charge for this service.

In all cases the City will own and maintain all electrical facilities and the service conductors to the meter but will not take title to, own, or maintain any customer wiring beyond the meter.

The developer shall maintain a supply of spare parts consisting of a minimum of one pair of meter terminals and blocks for each 12 meters of fraction thereof for each size socket. These are to be kept in a marked, enclosed container at a central point agreed to in advance with the City.

516. Transient Mobile Home Development: A transient mobile home development is one without one or more of the requisites for a permanent mobile home development. The City may, at its option, serve individual mobile homes in a transient mobile home development in the same manner as those in a permanent mobile home development. In that case those standards and policies appropriate to a permanent mobile home apply.

F. SERVICE ALTERATIONS

517. It is the intent of the City to utilize as much of its existing facilities as practical. The City will charge the customer for service alterations required solely for the customer's convenience, i.e., relocating existing City facilities to clear sundecks, room additions, swimming pools, etc. For most relocations, the customer will be required to update his service as set forth in this publication.

518. The charges for residential service alterations or relocations are shown in Exhibit N. All customer requirements for new service apply to alterations as well.

519. When a customer alters existing service and a new meter socket is to be installed, the City will make this switchover on an appointment basis. The City will disconnect the old service. The customer (or his electrician) will install a new meter socket, riser, weatherhead, and service dead-end in accordance with paragraph 504 and make any

alterations to the internal house wiring that is required. The City will then install a new service drop and make the connection at the weatherhead and at the pole and install the meter. Site power required during this transfer between meter sockets is the responsibility of the customer.

SECTION VI

COMMERCIAL & INDUSTRIAL

A. ELECTRIC SERVICE AVAILABLE

600. Upon the customer's request, the City will specify the type of electric service available at any given location for use by the customer.

601. Commercial and Industrial:
Single-phase, 60 Hertz, 120/240 volts, three-wire;
Three-phase, 60 Hertz, 120/208 volts or 277/480 volts, four-wire

Primary service at three-phase, 60 Hertz, 7,200/12,470Y volts, four-wire, can be made available under City of Gardner engineering specifications

An existing customer, who alters his service entrance to supply added load, must install equipment to accept the same voltage system, which would be available to a new customer.

SECTION VII

COMMERCIAL & INDUSTRIAL
SERVICE ENTRANCE POLICIES
AND REQUIREMENTS

A. GENERAL PROVISIONS

700. Architects, engineers, contractors, builders, etc., are requested to consult in advance with the City Electric Division to obtain any special specifications and directions for the proposed service entrance. This may avoid delay and expense if carefully observed and followed.

701. To avoid expensive alterations later, the service entrance should be adequate for future growth as well as for present requirements. It is recommended that all new service entrances have a minimum capacity of 200 amperes. It is the customer's responsibility to install service equipment in accordance with the provisions of the National Electrical Code as a minimum. An important provision of the current edition of the National Electrical Code is contained in Section 230-6 requiring that "Service equipment shall be suitable for the short circuit current available at its supply terminals." So that architects, engineers, and wiring contractors may select proper service equipment to meet the above requirement, the following information will apply to new installations. Available fault currents will vary with each installation. Inquiry for a particular location should be directed to the Electric Division office listed on page 1 of this booklet.

B. METERING

702. The customer shall furnish a City approved meter socket in all cases except where a current transformer rated meter socket is required. See Exhibit A for a list of approved meter sockets. Service shall be denied if an unapproved meter socket is installed. Customer-furnished meter sockets shall have a nationally recognized testing laboratory seal. The use of combination meter socket panels will not be acceptable for any class of service.

703. Except as allowed by law, regulation, or order, in multiple-occupancy buildings, each of the premises shall be individually metered, as well as the facilities used in common if applicable. All meters shall be at the same location and properly marked in agreement with the corresponding service switch markings. The customer may purchase and install a prefabricated device that includes the meter socket. The customer shall obtain approval by the City of such installation and equipment prior to purchase of equipment. In this case the customer will own and maintain the meter socket and enclosure and the City will own and maintain the meter. The building owner or his agent shall maintain a supply of spare parts consisting of a minimum of one pair of meter blocks or four terminal clips for each 12 meters of fraction thereof for each size socket in each building. These are to be kept in a marked enclosure at each metering location in each building. All pulling space provided in the customer's equipment for termination of the City's service conductors shall conform to the size requirements set forth in the National Electrical Code covering pull boxes.

704. In commercial buildings where a number of meters are installed, each service switch and meter enclosure is to be plainly marked by the building owner, the customer, or his agent with a permanent identification of the unit or space that it serves. General services and electric heat services must be similarly distinguished. The identification shall also be permanently inscribed on the inside back of each meter enclosure near the meter socket clips. Each individual commercial unit doorway shall be identified to allow City to test for correct connections. It is the responsibility of the building owner, the customer, or his agent to see that wiring in such locations is connected to the proper meter or meters. The City will not render service until all switches, meters, and entrance panels are properly marked. The City reserves the right to collect from the developer all expenses incurred due to improper labeling of this equipment (See Exhibit N).

705. Instrument metering on customer premises (see Exhibit J). Metering transformers will be furnished by the City for installation by the customer in the customer's metering transformer enclosure. The City will provide and the Customer will install the meter socket. In addition to the two grounds described in Paragraph 208, all C.T. metered customers shall drive a 5/8" X 8' copper clad steel ground rod as near as possible to the location of the meter socket. The upper end of the rod shall be flush with or just below grade. The meter socket shall be grounded to the rod using a solid bare copper wire at least #6 AWG. The customer will furnish and install a 1-1/4" diameter metallic conduit with sufficient pull boxes from the metering transformer enclosure to the meter socket. The City will provide and install the metering control cable from the metering transformer enclosure to the meter socket.

Metering transformers shall be installed with the polarity identification mark toward the City source and shall be separate from other metering or control circuits.

The size of the metering transformer enclosure required will vary with the size of the entrance conductors and their routing through the enclosure. The following table gives suggested minimum size enclosures but larger enclosures may be required. The customer shall furnish the enclosure.

C.T. Enclosure dimensions

800 or less 30" x 36" x 10"
Greater than 800 36" x 48" x 12"

Current Transformer enclosures must be readily accessible from the ground level or floor level, to City personnel only, and shall be a separate, hinged compartment with a hasp for City Electric Division lock. Enclosures shall not be used as splice boxes or raceways.

Note: Any customer metering equipment shall be installed on the load side of the main service disconnect switch.

C. OVERHEAD SERVICE

706. Individual commercial buildings up to 200 amps: For self-contained metering, the customer shall furnish and install a City approved meter socket, conduit, and conductors from their service entrance equipment to the meter socket; a conduit riser mast and weather head, service dead-end on the building, and service lateral conductors of a length sufficient to reach the source pole, to the City specifications (See Exhibit B). The service dead-end shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearance to ground or to the roofline as called for in the National Electric Code (see Paragraph 220). The City shall connect the customer's service lateral conductors at the pole and install the meter. See Exhibit N for the charge for this service.

707. Single phase greater than 200 amps and three phase 400 amp electric installations. The customer will provide and install the service entrance equipment, the service conduit riser mast, weather head, service dead-end on the building, and service lateral conductors of a length sufficient to reach the source pole, to the City specifications. (See Exhibit C) The service dead-end shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearance to ground or to the roofline as called for in the National Electric Code (see Paragraph 220). The City shall connect the service lateral conductors at the pole and install the metering current transformers, control cable, meter can, and billing meter. For single phase service, the City shall calculate, in a fair and equitable manner, the installation costs for this service using, as a basis, the same costs included in determining other user connection fees (see Exhibit N). See Exhibit N for the charge for three phase service. Multiplex meter base assemblies (duplex, triplex, or four-plex) for multiple occupancy commercial buildings shall be supplied by the customer and must be approved for use by the City. Multiplex meter base assemblies must be supplied with a main disconnect. The Customer shall install the service lateral conductors from the metering assembly to a service riser mast and weather head, a service dead-end, and service lateral conductors of a length sufficient to reach the source pole, to the City specifications. The service dead-end shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearance to ground or to the roofline as called for in the National Electric Code (see Paragraph 220). The City will make the connection of the service lateral conductors at the pole and install the meters. The City shall calculate, in a fair and equitable manner, the installation costs for multiple occupancy commercial buildings using, as a basis, the same costs included in determining other user connection fees (see Exhibit N).

708. Three phase services new or larger than 400 amps alterations must be installed underground.

D. UNDERGROUND SERVICE

709. The City of Gardner Electric Division is responsible for the approval of the design and the installation of the electric distribution facilities and they are to be located within the easements or right-of-ways designated for use by the City and in accordance with standard City specifications. Primary and secondary conduits will be located five feet

from the center-line of sewer lines or at the center-line of ten foot utility easements. The customer shall provide and install (for the City installed primary and secondary cables) electrical plastic conduit (Schedule 40 PVC), sized as required, under all driveways, paved area, culverts, creeks, extensively landscaped areas, etc. The depth shall be 48" to the top of the conduit. Underground conduit installed by the customer shall be manufactured according to NEMA standard TC-2 for Electrical Plastic Conduit. A heavy-duty string or nylon cord shall be provided in the conduit. Any conduit installed by the customer for use by the City, shall have the ends sealed and located by a stake extending 2' above the ground identifying the conduit. The customer shall install, according to the City specifications, the concrete pads, concrete pull boxes, and the concrete bases as required for the transformer and other equipment which is located on the customer's property. The City shall own and install all primary conductors, transformers, and primary switchgear and make all terminations in the transformer.

Normal clean up is included. Removal of excess spoils is the responsibility of the developer.

If rock is encountered, additional charges will be incurred by the developer, for the removal of rock excavated by the City during installation of distribution facilities (see Exhibit N). Rock charges must be paid to the City before any meters will be connected in a commercial development.

710. The City requires service lateral conductors installed by the customer to be in conduit. The minimum depth to the top of the conduit shall be 30". It is required that the Customer's service lateral conductors be limited to 500kcmil copper, with multiple conductors being installed for larger capacity. Larger conductors will be considered on an individual basis by the City of Gardner Electric Division. The City will not take title to, own, or maintain underground commercial or industrial service facilities.

Since metering methods vary considerably, for multiple occupancy commercial buildings, the customer is to contact the City prior to construction and work out the details of meter location and equipment requirements (See Paragraphs 702 through 705).

711. Commercial and Industrial Service Laterals in an Existing Overhead Service Area: Services 400 Amps or less, single phase or three phase. If the City service pole is on the customer's property or at the property line, the customer shall extend the service conduit and underground service lateral conductors to within six inches of the base of the designated pole. An added, continuous length of conductors shall be provided at the service pole as specified by the City to allow connection to the City distribution system. The City shall complete the installation of conduit up the service pole, connect the service lateral conductors at the pole, and install the meter. See Exhibit N for the charge for this service.

Commercial, Industrial, and High Rise Multi-Family Dwellings:
Services from 400 Amps to 1000 Amps, single phase or three phase

The customer shall extend the service conduit and underground service lateral conductors to the low voltage compartment of the pad-mounted transformer on the property or at the property line. The transformer location shall be immediately adjacent to a paved area and accessible by vehicle for maintenance. For a single customer, the City shall provide the current transformers, metering control cable, and meter and make all necessary connections at the transformer or agreed upon delivery point. See Exhibit N for the charge for this service.

713. Three phase electric installation-1000 KVA or over. All electrical service, which requires a transformer rated at 1000 KVA or greater, will be considered on an individual basis. The customer shall provide and install the transformer pad, metering enclosure pad, service conduit, and service lateral conductors from the building to the transformer, to the City specifications. The City shall install the transformer and make the connections of the service lateral conductors at the transformer. The City shall install a primary metering enclosure next to the transformer and provide and install all metering facilities and make all necessary metering connections. The installation cost to the customer shall be determined by the City and shall include the total cost of all enclosures or switchgear, all primary cable, the transformer and its related hardware, and the metering enclosure and meter supplies (see Exhibit N).

E. PRIMARY SERVICE

(Not Available for residential class use)

714. Due to the variety of methods by which a customer can take primary service it is difficult to generalize as to specific requirements. City representatives will work closely with the customer's architect and engineer to develop a mutually acceptable and economical design within the framework of the General Rules and Regulations and City specifications. In general however, the customer is to provide, install, and maintain all necessary lines, switches, transformers, secondary distribution facilities, and protective equipment on his premises. Primary protective equipment must be approved by the City to ensure coordination with the City owned distribution system.

The customer shall provide space and facilities for the City to terminate its primary lines. Each primary customer will be required to install a main disconnect switch and protective device at the property line. The customer shall also provide space and provisions for the installation of the City owned primary metering equipment.

The customer shall supply the City two copies of the equipment specifications and construction drawings well in advance of the start of construction and before equipment is ordered.

At the time of construction, the customer owned facilities shall comply with all current editions of the City standards or specifications that apply. Copies of these specifications are available from the City. Contact the customer care center listed on page 1 of this booklet. The installation cost to the customer shall be determined by the City and shall include the total cost of all electrical facilities required to provide primary service (including metering) (see Exhibit N).

SECTION VIII

EXHIBITS

THIS SECTION CONTAINS DRAWINGS OF
TYPICAL SERVICE ENTRANCE INSTALLATIONS
AND OTHER REQUIREMENTS

EXHIBIT A

City of Gardner Electric Division
Approved Meter Sockets

Socket Type	Milbank	Durham
1 gang, 200 A single phase 3-wire	U9158-XL-KK-IL	UGH-RS212C
1 gang, 400 A single phase 3-wire	U4702-X-IL	U-H5300U
2 gang, 200 A single phase 3-wire	U1252-X-K1539-5T24	UG-2R2332U
1 gang, 200 A three phase 4-wire	U8107-XL-1L	U-H213C

EXHIBIT B

NOTES

A. Customer to own and install service entrance conductors with 24" beyond weatherhead.

B. Service drop and connections by the City of Gardner Electric Division.

C. Customer to own and install the service attachment, such as service hook, wire holder, or bracket on mast capable of supporting a 900lbs force. Customer to own and install service mast with entrance head. If the mast extends above the eave of the building, the service will be attached to the mast and the mast must be 2" (min.) rigid galvanized conduit. If the mast extends 36" above the roof line, it must be guyed or braced to support the service. If the service attachment is on the building, the mast may be rigid metal, EMT, or Schedule 40 electrical plastic conduit. The height of attachment must provide the clearance to ground or to the roof line as called for in the National Electrical Code.

D. Install meter socket at least 36" away from windows and doors.

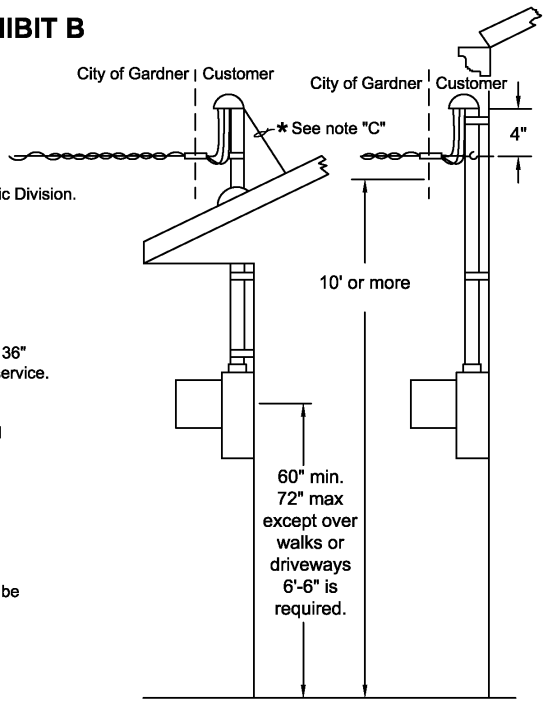
E. Customer will furnish and install meter socket and hub.

F. Customer's service entrance conductors and conduit are to be sized in accordance with the NEC.

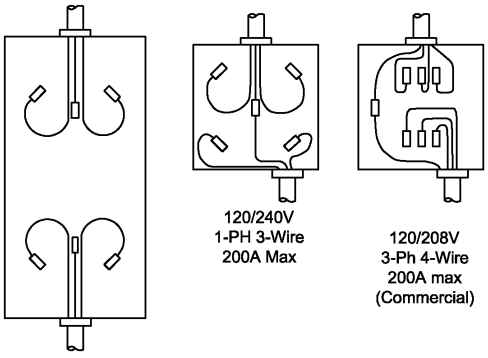
G. Customer shall not use meter enclosure to terminate or enclose his system ground.

H. Provide some slack ahead of terminations in the meter socket to allow for future maintenance.

I. Color code conductors according to NEC.



Typical Connections by Customer



120/240V
1-PH 3-Wire
400A Max

120/240V
1-PH 3-Wire
200A Max

120/208V
3-Ph 4-Wire
200A max
(Commercial)

* Required if mast is 36" above roof (See note C.)

Customer furnished and owned material:

DESCRIPTION
hub
meter socket
entrance head
conduit straps
conductor
service mast
#6 CU ground wire
5/8" x 8' ground rod

GARDNER
Kansas Gardner Energy Center

OVERHEAD SERVICES SELF-CONTAINED METERS

Drawing Date: 1-2-2007

EXHIBIT C

NOTES

A. Customer to own and provide service lateral conductors from pole to building.

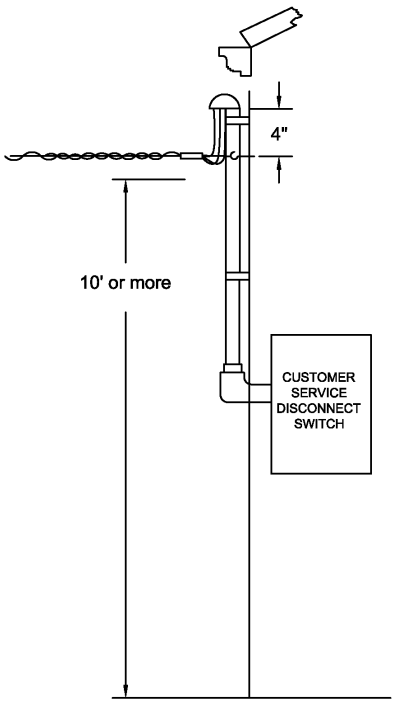
B. Customer to own and install the service attachment, such as service hook, wire holder, or bracket on mast capable of supporting a 900lbs force. Customer to own and install service mast with entrance head. If the mast extends above the eave of the building, the service will be attached to the mast and the mast must be 2" (min) rigid galv. conduit and guyed or braced as required to support the service. If the service attachment is on the building, the mast may be rigid metal, EMT, or Schedule 40 electrical plastic conduit. The height of attachment must provide the clearance to ground or to the roof line as called for in the National Electrical Code.

C. Meter will be installed on pole. (unless multi-occupancy)

D. Customer's service entrance conductors and conduit are to be sized in accordance with the NEC.

E. Color code conductors according to NEC.

F. City of Gardner Electric Division to install service entrance conductors and make connections at pole and building.



Customer furnished and owned material:

DESCRIPTION
hub
entrance head
conduit straps
conductor
service mast
#6 CU ground wire
5/8" x 8' ground rod

GARDNER Kansas Gardner Energy Center

COMMERCIAL OVERHEAD SERVICES 400 AMP, SINGLE PHASE OR THREE PHASE

Drawing Date: 1-2-2007

EXHIBIT D

NOTES

A. Meter socket furnished and installed by Customer.

B. Customer shall not use meter socket to enclose or terminate his system ground.

C. Insulated bushing furnished and installed by Customer. Do not use center knockout for incoming conduit.

D. Conduit expansion joint to compensate for soil settling. Leave sufficient slack in service conductors to allow joint to work.

E. All conduit - electrical plastic whole-inch size conduit (see table) furnished, properly installed, owned, and maintained by customer. (except as noted)
The City of Gardner Community Development Department shall inspect before backfilling.

F. Customer shall provide a heavy duty string or nylon cord in conduit.

G. Please contact the City of Gardner Community Development Department when ready.

H. Install clamp above elbow to foundation.

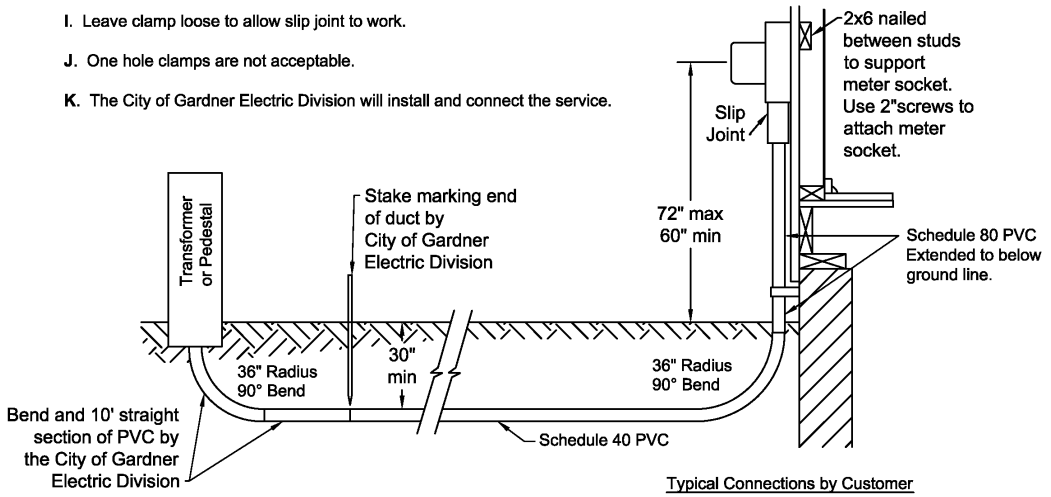
I. Leave clamp loose to allow slip joint to work.

J. One hole clamps are not acceptable.

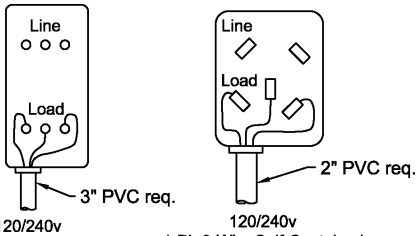
K. The City of Gardner Electric Division will install and connect the service.

BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233



Typical Connections by Customer



120/240v
1-Ph 3-Wire Self-Contained
Only use left knockout
for incoming conduit
400A Max

120/240v
1-Ph 3-Wire Self-Contained
200A Max

Typical Service Entrance

Backfill shall consist of dirt or sand only, No frozen material, rocks, clods or debris shall be used.

Service Size	Conduit Requirement
200 Amp	2" PVC
2 - 200 Amp	3" PVC
400 Amp	3" PVC

GARDNER Kansas Gardner Energy Center

EXISTING FACILITY RESIDENTIAL UNDERGROUND SERVICES SINGLE FAMILY & DUPLEX

Drawing Date: 1-2-2007

EXHIBIT E

NOTES

A. Meter socket furnished and installed by Customer.

B. Customer shall not use meter socket to enclose or terminate his system ground

C. Insulated bushing furnished and installed by Customer. Do not use center knockout for incoming conduit.

D. Conduit expansion joint to compensate for soil settling. Leave sufficient slack in service conductors to allow joint to work.

E. All conduit - electrical plastic whole-inch size conduit (see table) furnished, properly installed, owned, and maintained by customer. The City of Gardner Community Development Department shall inspect before backfilling.

F. Customer shall provide a heavy-duty string or nylon cord in conduit.

G. Please contact the City of Gardner Community Development Department when ready.

H. Install clamp above elbow to foundation.

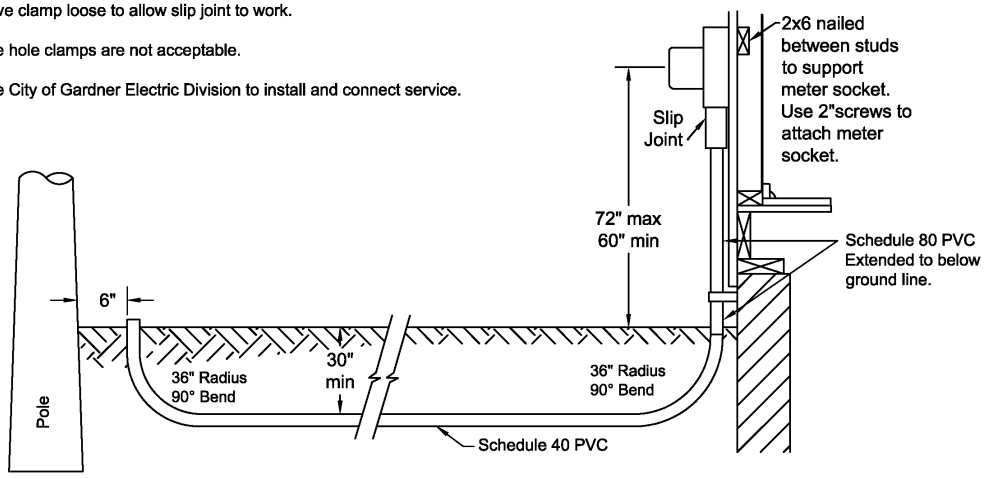
I. Leave clamp loose to allow slip joint to work.

J. One hole clamps are not acceptable.

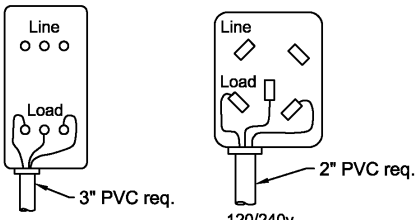
K. The City of Gardner Electric Division to install and connect service.

BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233



Typical Connections by Customer



120/240v
Self- Contained
Only use left knockout for incoming conduit
400A max

120/240v
1-Ph 3-Wire
200A Max

Typical Service Entrance

*Backfill shall consist of dirt or sand only, No frozen material, rocks, clods or debris shall be used.

Service Size	Conduit Requirement
200 Amp	2" PVC
2 - 200 Amp	3" PVC
400 Amp	3" PVC

GARDNER Kansas Gardner Energy Center

RESIDENTIAL UNDERGROUND SERVICES 400A OR LESS OVERHEAD SECONDARIES

Drawing Date: 1-2-2007

EXHIBIT F

NOTES

A. Meter socket furnished and installed by Customer.

B. Customer shall not use meter socket to enclose or terminate his system ground.

C. Insulated bushing furnished and installed by Customer.
Do not use center knockout for incoming conduit.

D. Conduit expansion joint to compensate for soil settling. Leave sufficient slack in service conductors to allow joint to work.

E. All conduit - electrical plastic whole-inch size conduit furnished, properly installed, owned, and maintained by customer. The City of Gardner Community Development Department shall inspect before backfilling.

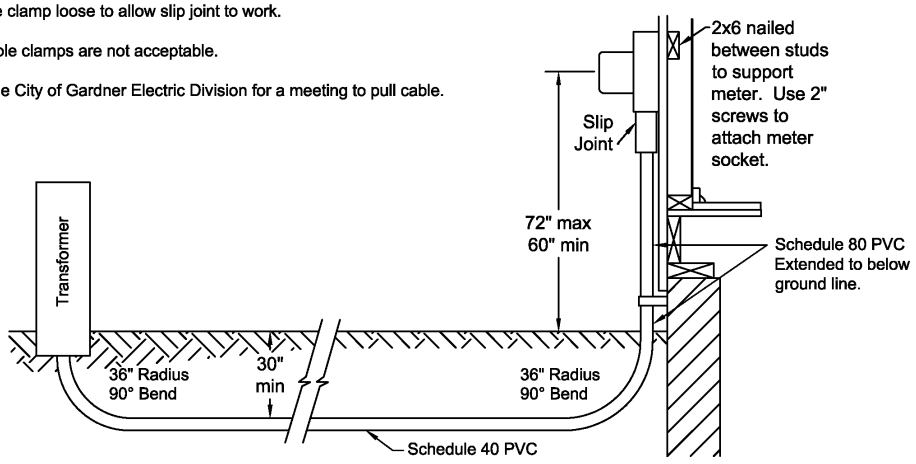
F. Customer shall provide and install cable. Customer shall leave enough cable for City of Gardner to complete the connection. Please contact The City of Gardner Community Development Department when ready.

G. Install clamp above elbow to foundation.

H. Leave clamp loose to allow slip joint to work.

I. One hole clamps are not acceptable.

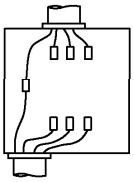
J. Call the City of Gardner Electric Division for a meeting to pull cable.



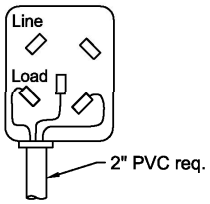
BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233

Typical Connections by Customer



120/208 Y
200A Max



120/240v
1-Ph 3-Wire
200A Max

Typical Service Entrance

Backfill shall consist of dirt or sand only, No frozen material, rocks, clods or debris shall be used.

Customer's cable and conduit shall be sized and installed to meet National Electrical Code and/or local requirements.

GARDNER
Kansas Gardner Energy Center

UNDERGROUND SERVICES TO
3-PHASE 120 /208V Y
1 PHASE 120 /240V
SELF-CONTAINED METERING
UNDERGROUND SECONDARIES

Drawing Date: 1-2-2007

EXHIBIT G

NOTES

A. Customer shall own and install ¼" min. guy and anchor (as required), as approved by the City of Gardner Electric Division.

B. Customer shall own and install service entrance conductors with 24" beyond weatherhead.

C. Customer shall own and install service hook capable of supporting a 900 lbs. force.

D. Service drop and connections by the City of Gardner Electric Division.

E. Customer shall own and install service mast with entrance head

F. Customer shall furnish and install meter socket (see exhibit A) and hub.*

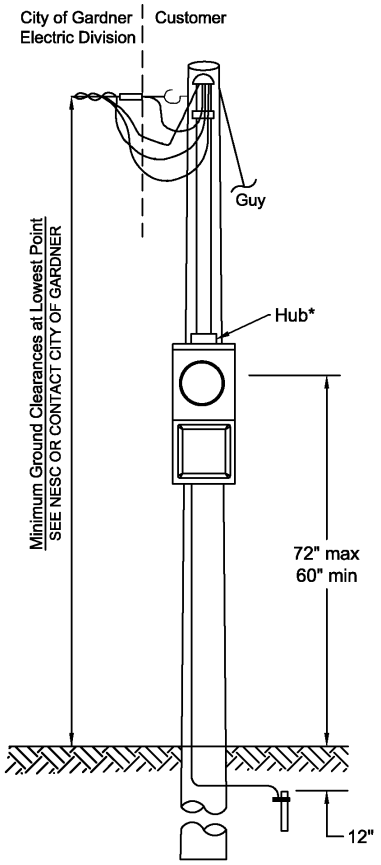
G. Clearances for service drop shown are the minimum without other attachments to pole. If communications wires are attached, service pole shall be tall enough to maintain these clearances to bottom wire on pole and permit 40" minimum spacing below the City of Gardner Electric Division drop conductors.

H. Customer shall own and install main fused disconnect with protective devices and outlets as required (must be outdoor weathertight 600V box). A fuse or circuit breaker shall not be installed in the neutral nor the ground conductor of the service entrance.

I. Customer shall own and install ⅝" x 8' ground rod and the #6 copper ground wire from his main disconnect to the ground rod.

J. Customer shall own and install service pole, minimum size class 7 or equivalent structure (4"x4" or 6"x6" CCA Treated Post) and tall enough to provide the clearances as shown. Minimum pole setting depth is 10% of the length of the pole plus 24" with a minimum depth of 60". Pole butt must be preservative treated to at least 12" above ground line.

K. Color code conductor per NEC.



***Meyers Hub for riser**
O.Z. Gedney, Part No. CHM-200DT

BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233

Customer furnished and owned material:

DESCRIPTION
disconnects
hub
meter socket (See Exhibit A)
entrance head
service hook
conduit straps
conductor
service mast metallic conduit nipples
#6 CU ground wire
5/8" x 8' ground rod

Approved Temporary Power Boxes

Milbank	-	U5101-XL
Midwest Electrical Products	-	M055C033

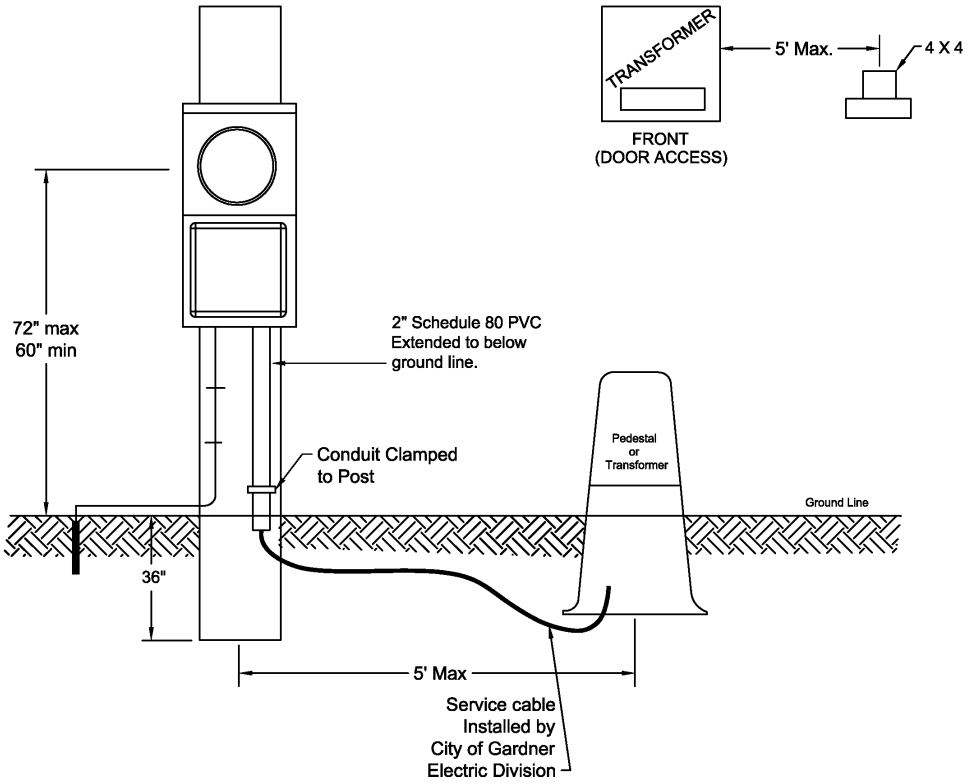
GARDNER Kansas Gardner Energy Center

CUSTOMER INSTALLED
1-PHASE 120 / 240V or
120 /208V 3 WIRE
TEMPORARY SERVICE FROM
OVERHEAD SOURCE

Drawing Date: 1-2-2007

EXHIBIT H

TRANSFORMER DETAIL



Approved Temporary Power Boxes

Milbank	-	U5101-XL
Midwest Electrical Products	-	M055C033

NOTES

A. 8' post, 4"x4" minimum provided and installed by Customer next to Padmount transformer (secondary side-right front) or service pedestal.

B. Customer shall furnish and install a integrated meter socket (See Exhibit A) and raintight service box.

C. Customer shall own and install a ⅝" x 8' ground rod with a #6 (min) bare copper lead.

D. Service address shall be marked in highly visible manner.

E. A minimum of 8' of 3 - #4 CU cable (Southwire Type SEOOW) coiled at base of meter support for installation by the City of Gardner Electric Division.

BEFORE YOU DIG CALL

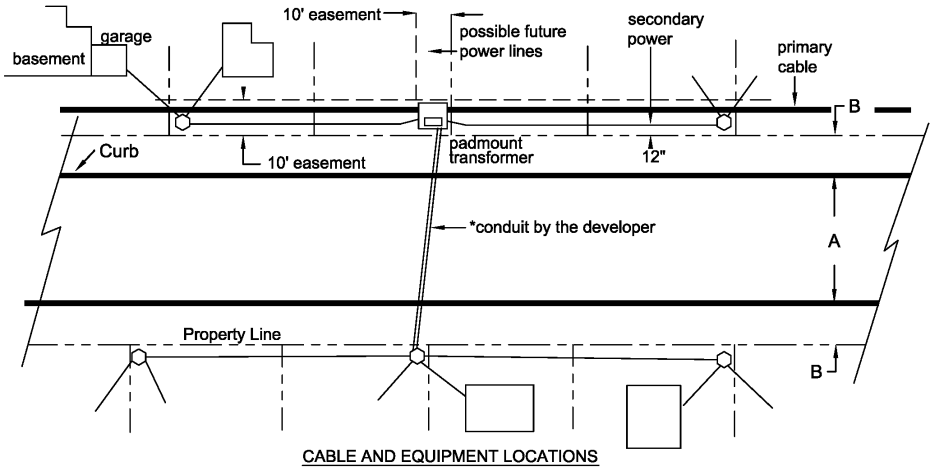
KANSAS ONE-CALL
1-800-344-7233

GARDNER
Kansas Gardner Energy Center

CUSTOMER
INSTALLED 120 / 240V or
120 /208V,3-WIRE
TEMPORARY SERVICE FROM
UNDERGROUND SOURCE

Drawing Date: 1-2-2007

EXHIBIT I



CABLE AND EQUIPMENT LOCATIONS

The services will extend from the secondary power pedestals or the transformers.

The above shows a typical arrangement. The service locations for the buildings on the same side of the street as the transformers are determined by the pedestal and transformer locations. on the opposite side of the street, the service locations for the buildings are determined by the pedestal locations. The customer will install a straight run of Schedule 40 electrical plastic conduit between the entrance and the secondary pedestal or the transformer as shown on City of Gardner provided drawing. Contact the City of Gardner Electric Division for job print.

Note: Services shall be located at alternate ends of houses as shown, not on the backs.

RIGHT-OF-WAY

Right-of-ways and easements suitable to the company, including those as may be required for street lighting, must be furnished by the applicant in reasonable time to meet construction and service requirements; must be cleared of trees, stumps, and other obstructions; and must be graded to within six inches of final grade by the applicant, all at no cost or expense to the City of Gardner, before the City of Gardner will be required to commence construction. Such clearance and grading must be maintained by the applicant during construction by the City of Gardner Electric Division.

TYPICAL RIGHT OF WAY	DIMENSION A	DIMENSION B
50 FEET	28 FEET	11 FEET
60 FEET	36 FEET	12 FEET

BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233

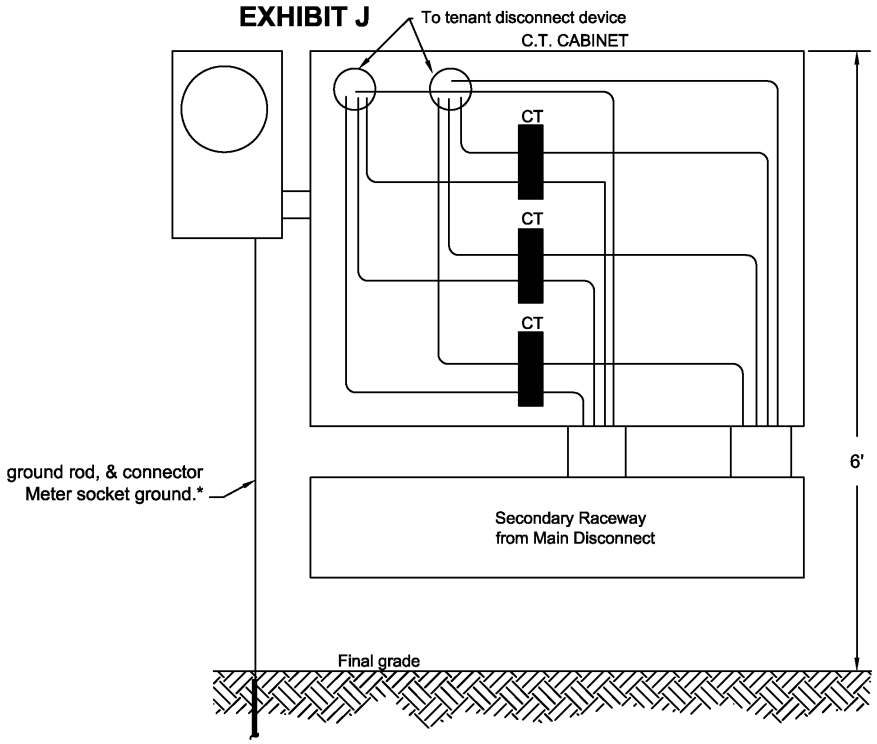
*Developer to provide Schedule 40 electrical plastic conduit (size to be specified) from property line, with heavy duty string or nylon cord and staked at both ends.

GARDNER
Kansas Gardner Energy Center

EXISTING FACILITY
RESIDENTIAL UNDERGROUND
SERVICES SINGLE
FAMILY & DUPLEX

Drawing Date: 1-2-2007

EXHIBIT J



NOTES

A. CT meter socket (Locate center of meter socket 60" to 72" above grade)

B. 30" x 36" x 10" CT cabinet* (800A or less). 36" x 48" x 12" CT cabinet* (Greater than 800A)

C. 1¼" Rigid metallic conduit to ensure electrical bonding between CT cabinet and meter socket.

D. Ground shall not pass through CT cabinet.

E. Customer to furnish and install Main Disconnect and Raceway for multiple tenants.

F. Customer to install all wiring in accordance with NEC

G. C.T. Cabinet furnished and installed by Customer on outside of building.

H. Meter can and C.T.'s furnished by the City of Gardner Electric Division & installed by Customer on outside of building.

I. Customer shall furnish and install conductor from tenant disconnect to raceway.

J. Customer shall furnish and install a hasp for C.T. cabinet.

K. C.T.s shall be mounted securely to back of cabinet by customer in such a manner as to allow proper installation of all conductors.

* ⅝" Ground Rod and #6 CU Ground wire

GARDNER
Kansas Gardner Energy Center

CT METERING
INSTALLATION
FOR COMMERCIAL SERVICE

Drawing Date: 1-2-2007

EXHIBIT K

BEFORE YOU DIG CALL

KANSAS ONE-CALL
1-800-344-7233

NOTES

A. Meter socket and disconnect enclosure furnished and installed by Customer. Midwest Electrical Products - #R281E1P6H

B. Mounting of direct burial post shall be firmly driven into 24" of undisturbed earth or pedestal shall be mounted on concrete base or with concrete anchor.

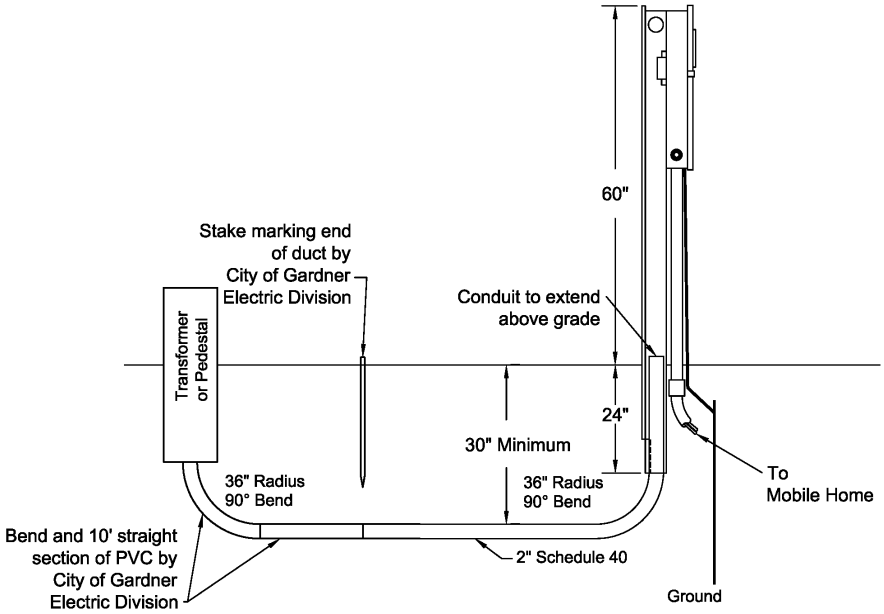
C. All conduit - electrical plastic 2" PVC, schedule 40 conduit furnished, properly installed, owned, and maintained by customer. Allow the City of Gardner Community Development Department to inspect before backfilling.

D. Minimum depth below grade for conduit is 30"

E. Ground rod furnished and installed by Customer ⅝" x 8' copperweld driven at least 12" away from mounting pedestal and/or concrete base.

H. Service lateral conductors furnished and installed by the City of Gardner Electric Division.

G. Conduit and service entrance conductors to mobile home furnished and installed by Customer.

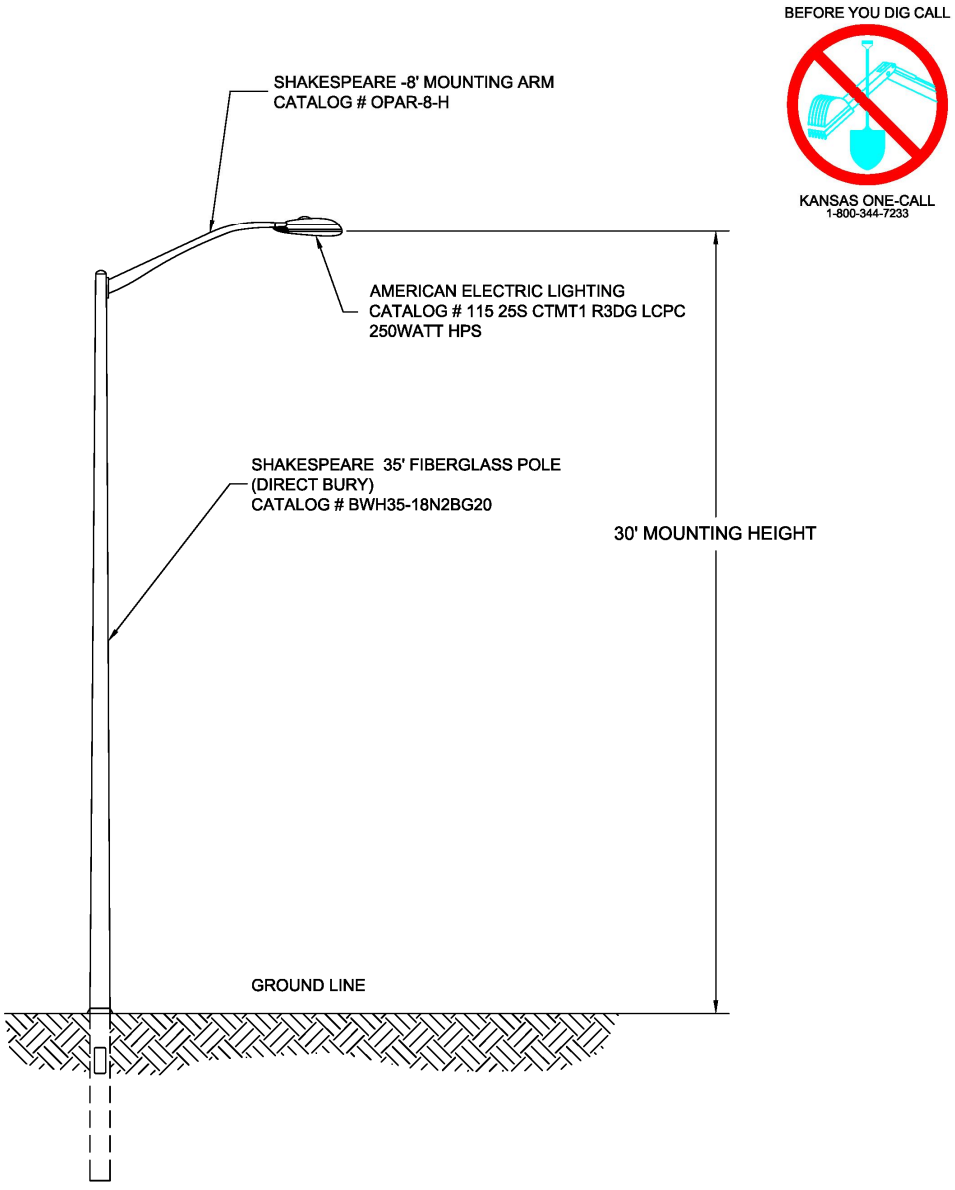


GARDNER Kansas Gardner Energy Center

UNDERGROUND SERVICE TO PERMANENT MOBILE HOMES 200A MAX

Drawing Date: 1-2-2007

EXHIBIT L



GARDNER
Kansas Gardner Energy Center

TYPICAL 35'
STREET LIGHT POLE

Drawing Date: 1-2-2007

EXHIBIT M

City of Gardner, Kansas
Residential Development
Developer Sign Off Form

Project: _____ **Developer:** _____

Contact Person: _____ **Contact Ph#:** _____

Date Issued: _____ **Date Received:** _____**(file)**

The City of Gardner is dedicated to helping its citizens realize optimum value and utility from their electric service. To accomplish this, the City has certain uniform standards and requirements that must be met by the developer prior to electric infrastructure being installed.

The customer / developer is to provide, at no cost to the City, all right- of-way and easements required for the City's primary and secondary service cables, pad-mount transformers, secondary pedestals, and feed-through electric cabinets required to provide electrical service to the customer. The developer is also required to provide all-weather hard surface road access for vehicles (Streets) to all areas for development.

All lots must be staked in the rear and curb chipped in the front. The easements must be clear of all trees, and overhanging branches (below 15'), as well as stumps, and other obstructions, before the City begins construction. Removal of excessive spoils (rock, trees, stumps, etc.) remaining after the installation of City facilities will be the responsibility of the developer. Easements within cross slope incline areas must have a minimum 10' wide flat working area for trenching. Roadway (conduit crossings) must be installed and marked for electric use with a (red) stake on both sides of the road crossing. Failure to supply road crossings prior to construction will result in delays as the developer will still be required to provide all crossings. All silt fencing that was installed parallel to the utility easements or inside of the easements, and is damaged during the installation of wire and equipment shall be the responsibility of the developer. Rock or fill containing rock that will prevent trenching is subject to an additional Rock Charge. Per: current *Electric Service Standards, Exhibit N)*

To assist the City in providing timely and efficient installation of its facilities, please review the following requirements, verify completion of each by initialing, and return to the Gardner Electric Division Project Manager via Fax # 913-856-7325

Initials	Requirement
_____	Developer has provided all rights-of-way and easements
_____	Subdivision is platted and plats have been filed
_____	Roadways are completed and development is to within 6" of final grade
_____	All lots are staked at the rear and curb cuts w/ lot #'s have been installed
_____	All street conduit crossings are in and identified
_____	Utility easements have been cleared for equipment access
_____	Developer has read and understands the current edition of the ***City of Gardner Electric Service Standards*** and its contents.

Non-compliance with this form will delay commencement of Electric utility installation.

If the City mobilizes, but CANNOT complete its installation as a result of non-compliance of one or more of the above requirements, the customer/developer will be subject to a $500 charge by the City for the mobilization costs. If levied, this bill must be paid before the City will re-commence construction on the development and after the incomplete requirement(s) have been finished.

Developer _____ Date _____

_____
(Print Name)

EXHIBIT N

City of Gardner Electric Division
Service Charges:

General
Damage to Electrical Equipment - Paragraph 120: ***Actual costs plus 15%***
Design Time for Revisions to Jobs - Paragraph 202(d): ***$75/hour** **

Electric Division review of development plans -
Paragraph 231
$100/plat*

Temporary Services
Customer provided temporary service, from existing overhead secondary – 120/240 volt - Paragraph 232
$250

Customer provided temporary service, from existing secondary pedestal or pad-mounted transformer – 120/240 volt (underground) -Paragraph 233
$250

Customer provided temporary service, where no adequate facilities exist – 120/240 volt (overhead or underground) - Paragraph 234:
Actual Costs*

Set meter for seasonal account where service exists: ***$80***

Residential Service Connections: Overhead
New Permanent Service: (up to 400 Amp), 125' service drop maximum - Paragraph 507
$300 *per Ordinance 15-404;* ***under administrative review for adjustment*** *&* ***recommended $550****

Service drop which is greater than 125 feet long: ***Actual Cost***

Residential Service Connections: Underground
New Permanent Underground Service: (up to 400 ampere) from overhead distribution, 125' service lateral maximum - Paragraph 508, ***$700***

Service lateral which is greater than 125 feet long: ***Actual Cost***
New Permanent Underground Service for Multi-family dwellings - Paragraph 509 ***Actual costs***

New Permanent Underground Construction :(Single family or Duplex) -. In a platted subdivision: Installed solely by City of Gardner

Electric Division - Paragraph 512
$1700/lot; per ordinance rev. 408.1 dated 8/06

New Permanent Underground Construction :(Single family or Duplex) – In a platted subdivision, Developer installed conduit distribution system by electric contractor.
- Paragraph 511 and 512
$1400/lot; under administrative review

An additional charge is payable to the City electric division for covering service connections, engineering, and inspection fees: ***$300 per lot per ordinance rev. 15-404 dated 8/06***

Lot charge supplement: when average lot in a development exceeds 100' in width for the type of distribution construction that is built (front lot or rear lot) : ***$6.00/ft. (for each foot in excess of 100 ft. times the number of lots in development).****

Mobile Home Underground Service – Paragraph 515 ***Actual Cost***

Note: ***** *denotes new fees not in current ordinance for electric division*

EXHIBIT N (Continued)

City of Gardner Electric Division
Service Charges

Service Associated Charges
Residential Alterations – Paragraph 518
Replacing Overhead Service drop $550
Overhead Service to Underground Service $850
Upgrade or relocation of Underground Service Actual Cost
Other Charges
Rock Excavation $15/ Linear Foot of Trench
All increase in material, labor, and equipment due to changes made by customer - Paragraph 123
Actual Cost
All charges necessary to correct billing arrangements in multi-tenant buildings (Residential or Commercial) due to mislabeling of meters and switches – Paragraph 509 and 704
Actual Cost
Commercial Service Connections: Overhead
Single Phase Service (up to 200 Amps) - Paragraph 707 $550
Single Phase Service (greater than 200 Amps) - Paragraph 708 Actual Cost
Three Phase Service (200 Amps) - Paragraph 709 $2600
Three Phase Service (400 Amps) - Paragraph 709 $5300
Three Phase Primary Service (12.47KV) - Paragraph 715 Actual Cost
Commercial Service Connections: Underground
Single Phase Service (up to 200 Amps) - Paragraph 712 $550
Single Phase Service (greater than 200 Amps) - Paragraph 712 Actual Cost
Three Phase Service (200 Amps) - Paragraph 712 $2600
Three Phase Service (400 Amps) - Paragraph 713 $5300
Three Phase Service (600 Amps) - Paragraph 713 $6900
Three Phase Service (800 Amps) - Paragraph 713 $7300
Three Phase Service (1000 Amps) - Paragraph 713 $9100
Three Phase Service (Greater than 1000 Amps) - Paragraph 714 Actual Cost
Three Phase Primary Service (12.47KV) - Paragraph 715 Actual Cost

Kansas City Power & Light
ENERGIZING LIFE

WILLIAM P. HERDEGEN III
Vice President, Customer Operations

February 8, 2007

Mr. Ken Arnold
Electric Manager
120 East Main Street
City of Gardner
Gardner, KS 66030

Dear Ken:

The City of Gardner has been an important customer for Kansas City Power & Light Company for many years. The service that KCPL has provided to Gardner has mutually been managed with integrity, safety awareness, professionalism and joint-partnering for aiding the security and reliability of our regional electric system and the City of Gardner's distribution network and service area. These Electric Service Standards for your electric utility generally reflect the same high standards that are utilized each day within the KCPL service area surrounding, and in some special cases within the City of Gardner.

Gardner electric standards have been customized by Gardner Electric staff and associate engineers to differentiate on types of services rendered and fees associated with the unique rate structures to City of Gardner customers as compared to the charges and similar specified services that KCPL customers are accustomed to receiving. Kansas City Power & Light Company has provided document review as requested by Gardner Electric Staff to insure that the standards have not been modified to an extent that lowers standards that are presently in place by the company.

The document as it is now amended for the Gardner Electric Utility is a professionally technical and sufficient reference for electric staff, administrators, council and affiliate customers that will do business in developing and installing new infrastructure for electric power within the City of Gardner service area.

Sincerely,

William P. Herdegen III

/jmh

P.O. BOX 418679 ▪ KANSAS CITY, MO 64141-9679 ▪ TEL 816.556.2200 ▪ WWW.KCPL.COM
A Great Plains Energy Company